

REMARKS

Favorable reconsideration and allowance of this application are requested.

I. Discussion of Claim Amendments

By way of the amendment instructions above, claim 1 has been amended so as to clarify the same. In this regard, the high-molecular weight polymer that is obtained by the process has been termed a “high-molecular weight polymer product” whereas the low-molecular weight polymer that is reacted with the diisocyanate has been termed the “low-molecular weight feed polymer”.

Reference to “polyester” and “copolyester” in claim 6 has been deleted so as to address the rejection thereof under 35 USC §112, second paragraph. Withdrawal of the rejection advanced under this statutory provision against claim 6 is therefore believed to be in order.

Therefore, following entry of this amendment, amended versions of claims 1-6 will remain pending herein for which favorable reconsideration is requested.

II. Response to Art-Based Issues

A. 35 USC §102(b) Rejection

Claims 1-2 and 5-6 attracted a rejection under 35 USC §102(b) as allegedly anticipated by Mumcu et al (USP 4,689,361). Applicants suggest that the pending claims herein are patentably distinguishable over Mumcu et al.

The Examiner asserts that Mumcu et al discloses a method for increasing the molecular weight of polyamide and copolyamide by melt-mixing amino-functional polyamide with masked diisocyanates. Applicants respectfully disagree.

In this regard, Mumcu et al merely discloses a cold grinding or precipitation step

(column 3, lines 38-40) – **not** melt-mixing. Moreover, Mumcu et al relates to powder coating compositions which are fundamentally different from the compositions of the present invention. Powder coating compositions use the diisocyanate as a cross-linking agent to prepare thermosetting powders. In contrast, the compositions of the present invention are for use in shaped parts produced by extrusion, injection or blow molding (page 4, lines 33-35) – i.e., **melt** shaping techniques.

There is no disclosure in Mumcu et al of the polyamide or polyester-amide block copolymer **reacting** with the diisocyanate during melt mixing as defined in the amended version of pending claim 1. As there is no disclosure or even suggestion in Mumcu et al of a **reaction during melt mixing** between the components, there is also no disclosure of obtaining a polymer of greater molecular weight than the starting polymer, which stems from such reaction. Furthermore, there is also no disclosure that a permanent molecular weight increase in the polymer may be achieved after two (2) minutes reaction time during melt mixing as defined by pending claim 6.

Accordingly, the present invention is both novel and patentably unobvious over Mumcu et al.

B. 35 USC §103(a) Rejection

Prior claims 1-6 also attracted a rejection under 35 USC §103(a) as allegedly being “obvious”, and hence unpatentable, from Yonezawa et al (JP 09-157347) in view of Goto et al (USP 3,892,820) and further in view of Nelb II et al (USP 4,672,094).

the examiner alleges that Yonezawa et al teaches a method for producing high-molecular weight copolyester-amides comprising the reaction product of diisocyanate with isocyanate reactive polyester and polyamide, wherein said polyamide is amino functional. The applicants disagree with such an assertion.

Specifically, Yonezawa et al does not teach such a method for producing high-

molecular weight copolyester-amides comprising the reaction product of diisocyanate with isocyanate reactive polyester and polyamide, since there is ***no disclosure therein of a polyamide or polyamide/polyester having amino end groups***. Yonezawa et al instead teaches a method for producing a polyesteramide resin compositions consisting of (A) polyesteramide, (B) polymer and (C) diisocyanate. Yonezawa et al does not teach that the polyesteramide (A) has amino end groups. While the polymer (B) has at least two functional groups of one or more types, chosen from a group of carboxyl, amino and hydroxyl groups, there is no disclosure in Yonezawa et al that the polymer (B) is a polyamide or polyester. The example of the polymer (B) provided by Yonezawa et al is a polyetherpolyol (paragraphs 9 and 26).

Goto et al discloses the production of thermoplastic polyamide urethane urea resin derived from (A) a linear polyhydroxyl-terminated oligomer, (B) a hydroxyl-terminated polyester oligomer, (C) a linear polyamide oligomer having terminal groups of amino groups and (D) an organic diisocyanate. Goto et al mentions reaction of polyamides, copolyamides, or polyester-amides with unblocked diisocyanates or blocked diisocyanates. Goto et al also discloses increasing the molecular weight of the polymers by use of diisocyanate as a chain extender which reacts with ***terminal carboxylic acid groups***.¹

Nelb, II et al is similarly silent about reaction of diisocyanate with a lower molecular weight polymer comprising amino end groups. Instead, Nelb, II et al discloses increasing molecular weights of thermoplastic polyamides and polyesteramides by the reaction of an organic diisocyanate and dicarboxyl acid end groups.² The lower molecular weight polymer without amino end groups could result in cross-linking (col. 8, l. 63-65), unlike the process according to the present claim 1 which

¹ A process wherein the end groups are carboxyl groups will cause an undesired formation of carbon dioxide as a by-product, as stated in the Statutory Declarations submitted with the applicants' amendment dated April 25, 2007 (see especially the Statutory Declaration of inventor Loontjens).

² See the Loontjens Declaration which establishes that undesired formation of carbon dioxide may result as a byproduct when carboxyl end groups are present.

results in a linear high molecular weight polymer (p. 6, l. 8-9). Furthermore, the present invention which employs a polymer having amino end groups results in a very fast process. A stable high value of the melt viscosity was obtained after only 2 minutes. (See, p.6, l. 1-4).

Therefore, since Yonezawa et al does not teach polyamide or polyamide/polyester having amino end groups, combining its disclosure with Goto et al and/or Nelb, II et al would not in fact lead to the process according to the presently claimed invention. Withdrawal of the rejection advanced under 35 USC §103(a) is therefore in order.

III. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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